ifm electronic

Operating instructions
Binary level sensor

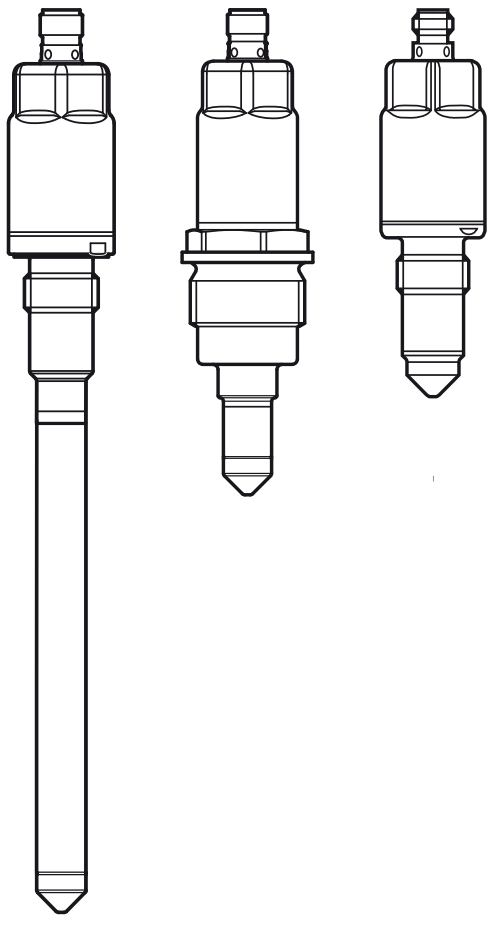
efector160

LMTx0x

LMTx1x

LMTx2x

UK



80223649 / 00 10 / 2014

Contents

1 Preliminary note 3
1.1 Symbols used 3

2 Safety instructions 3

3 Functions and features 4
3.1 Applications 4
3.2 Restriction of the application area 6

4 Function 6
4.1 Measuring principle 6
4.2 Processing of the measured signals 7
4.3 Other features of the unit 7
4.4 IO-Link 7
4.4.1 General information 7
4.4.2 Device-specific information 8
4.4.3 Parameter setting tools 8
4.5 Application examples 9
4.5.1 Application examples for unit types with short probe 9
4.5.2 Application examples for unit types with longer probe 10
4.5.3 Application example installation in existing tuning fork adapters 11

5 Installation 11
5.1 Installation location / environment 11
5.2 Installation process 12
5.2.1 Installation LMT1x0, LMT1x1 and LMT1x2 13
5.2.2 Installation LMT1x4 and LMT1x5 13
5.2.3 Installation LMT2x2 and LMT3x2 in existing tuning fork adapters 15
5.3 Notes on the 3A compliant installation 16
5.4 Note on the use in accordance with EHEDG 17

6 Electrical connection 18

7 Parameter setting 19
7.1 Parameter setting via PC 19
7.2 Parameter setting via the memory plug 21
7.3 Parameter setting via the teach input 22
7.3.1 Requirements 22
7.3.2 Set to the full vessel 22

7.3.3 Changing the output function....23
7.3.4 Fault during the setting process....23
8 Operation....24
9 Maintenance, repair, disposal....25
10 Notes on the regulation (EC) 1935/2004....25
11 Technical data and scale drawing....25
12 Factory setting....26

UK

1 Preliminary note

1.1 Symbols used

▶ Instructions

→ Cross-reference

Important note
Non-compliance can result in malfunction or interference.

Information
Supplementary note.

2 Safety instructions

- Please read the product description prior to setup of the unit. Ensure that the product is suitable for your application without any restrictions.
- If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property can occur.
- Improper or non-intended use may lead to malfunctions of the unit or to unwanted effects in your application. That is why installation, electrical connection, set-up, operation and maintenance of the unit must only be carried out by qualified personnel authorised by the machine operator.
- In order to guarantee the correct condition of the device for the operating time the device must only be used in media to which the wetted parts are sufficiently resistant (→ Technical data).
- The responsibility whether the unit are suitable for the respective application lies with the operator. The manufacturer assumes no liability for consequences

of misuse by the operator. Improper installation and use of the units result in a loss of the warranty claims.

3 Functions and features

The unit monitors the level of liquid, viscous and powdery media in tanks and pipes. It can be used for limit detection and run-dry protection. The separate setting of two switching thresholds enables the detection of two different media (can be used, for example, for phase separation or differentiation of media).

3.1 Applications

- Suitable for food and hygienic areas due to food-grade materials and hygienic installation possibilities.
- Detection of almost all media, even extremely adhering (e.g. ketchup) or non-conductive ones (e.g. vegetable oil).
- The sensitivity is preset at the factory. Easy setup possible without any programming. The unit can be set so that it is also suitable for the applications of other unit types (→ following table / → 12 Factory setting).
- Available process connections: G1/2, G3/4 and G1.
- Different probe lengths for various mounting positions and for temperature decoupling (→ 4.5.2).

Type	Preset [1]	Sensitivity [1]	Probe length [2]	Process connection	EHEDG	3A
LMT100	Aqueous media	Low	11 mm	G1/2	●	●
LMT110	Oils, greases, powders	High	11 mm	G1/2	●	●
LMT121	Media with low water content	Medium	11 mm	G1/2	●	●
LMT102	Aqueous media	Low	38 mm	G1/2	●	●
LMT104	Aqueous media	Low	153 mm	G1/2	●	
LMT105	Aqueous media	Low	253 mm	G1/2	●	
LMT202	Aqueous media	Low	28 mm	G3/4, tuning fork contour		
LMT302	Aqueous media	Low	38 mm	G1, tuning fork contour		

[1]) Sensitivity adjustable (→ 7 Parameter setting).
[2]) Probe length measured from conical sealing edge (→ Technical data).

In the following table you can find a selection of tested media and the corresponding recommended unit type. A complete list of media is available at www.ifm.com (see tab "Operating instructions" in the data sheet).

Medium	LMTx0x	LMTx1x	LMTx2x
Alcohol (40 % vol)	●	○	●
Beer	●	○	●
Butter (salted / unsalted)	○	○	●
Ice cream	○	○	●
Grease	○	●	○
Honey	○	○	●
Yoghurt, plain	●	○	○
Non-dairy creamer	○	●	○
Ketchup	●	○	○
Jam	●	○	○
Milk	●	○	●
Remoulade	●	○	○
Olive oil	○	●	○
Cream (30 %)	○	○	●
Chocolate (at approx. 40 °C)	○	○	●
Water (distilled)	●	○	●
Water (tap water)	●	○	●
Sugar (granulated sugar)	○	●	○

●	The medium can be detected without the need to change the factory setting (plug & play).
○	The medium can be detected by setting the sensitivity (with IO-Link).

The above-mentioned details are non-binding reference values.
Depending on the composition of the listed media deviations may occur.

▶ Always check that the device is suitable for your application without any restrictions!

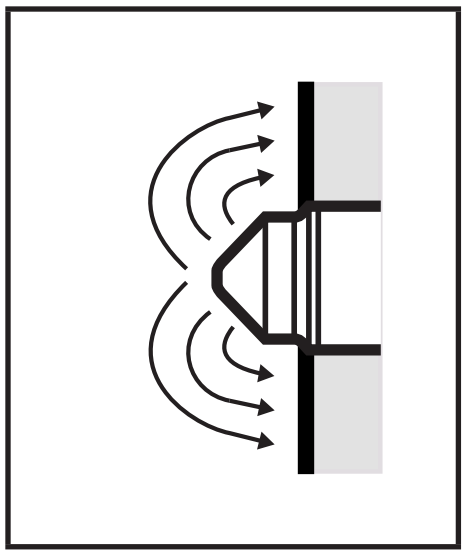
3.2 Restriction of the application area

- Not suitable for abrasive media (e.g. quartz sand) and heavy bulk material (e.g. stones).
- For use in aggressive media (acids and alkali):
  ▶ Check the compatibility of the product materials beforehand (→ Technical data sheet).
- Media which are very inhomogeneous separate from each other thus forming separation layers (e.g. oil layer on water):
  ▶ Check the function by an application test.
- Air or gas bubbles in liquid media may lead to unwanted switching operations.
  ▶ Check the function by an application test. If required, adapt the sensitivity or set switching delays → 7 Parameter setting.
- Do not expose the probe tip to intensive sun radiation (UV radiation).

4 Function

4.1 Measuring principle

The unit operates to the impedance spectroscopy method. It evaluates the electrical behaviour of the media to be monitored in the frequency range between 50 and 200 MHz. An electrical field is generated by the probe tip which is influenced by the level. The various media show characteristic behaviour. Also deposits or foam show significantly different behaviour.



When a suitable unit has been selected the presence of certain media is detected, deposits or foam are suppressed. In many cases the factory setting is sufficient. For special applications it is also possible to adapt the sensitivity to the respective application → 7 Parameter setting.

4.2 Processing of the measured signals

Factory setting

Outputs OUT1 / OUT2 complement each other:

OUT1 = Hno; OUT2 = Hnc

No medium detected	OUT1 = OFF	OUT2 = ON
Medium detected	OUT1 = ON	OUT2 = OFF

The readiness for operation and the switching status are indicated by LEDs → 8 Operation.

4.3 Other features of the unit

- Food-grade materials
- Hygienic installation possibilities without dead band.
- Approvals / conformities (→ Technical data sheet)
- Indication of the switching status and readiness for operation via LEDs.
- After power on the unit is immediately ready for operation; observe the application area of the individual unit types → 3.1 Applications.
- Defined position of the cable entry for angled sockets for use of ifm welding adapters.
- Streamlined sensor geometry, no blockage of the pipe, no pressure loss.
- Orientation-independent installation possible.
- On delay and off delay adjustable from 0...10 s.
- IO-Link function → 4.4 IO-Link.

Some unit types do not feature all indicated characteristics (→ Technical data sheet).

4.4 IO-Link

4.4.1 General information

This unit has an IO-Link communication interface which requires an IO-Link-capable module (IO-Link master) for operation.

The IO-Link interface enables direct access to the process and diagnostic data and provides the possibility to set the parameters of the unit during operation.

In addition communication is possible via a point-to-point connection with a USB adapter cable.

You will find more detailed information about IO-Link at www.ifm.com/de/io-link.

4.4.2 Device-specific information

You will find the IODDs necessary for the configuration of the IO-Link unit and detailed information about process data structure, diagnostic information and parameter addresses at www.ifm.com/de/io-link.

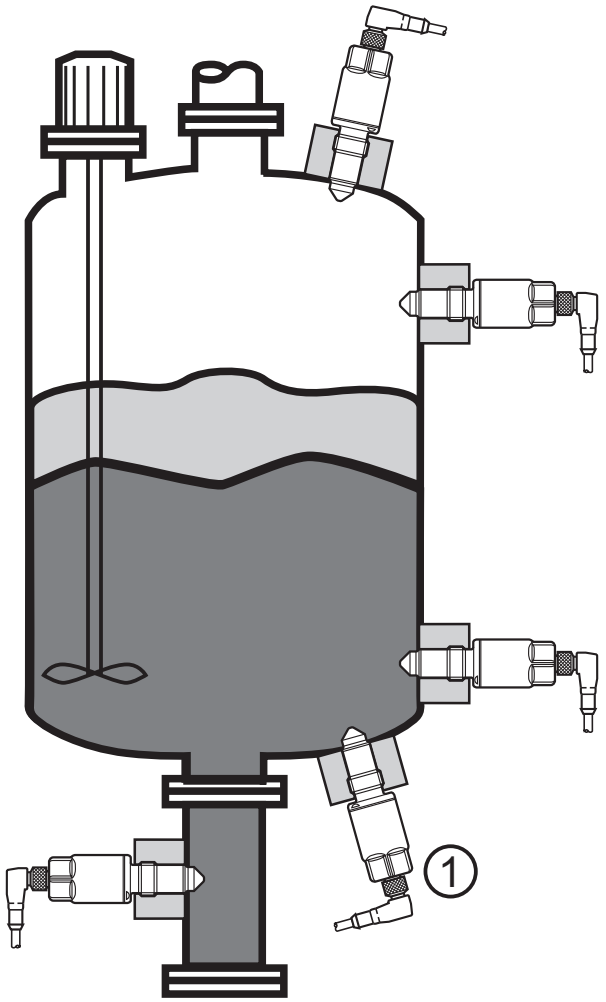
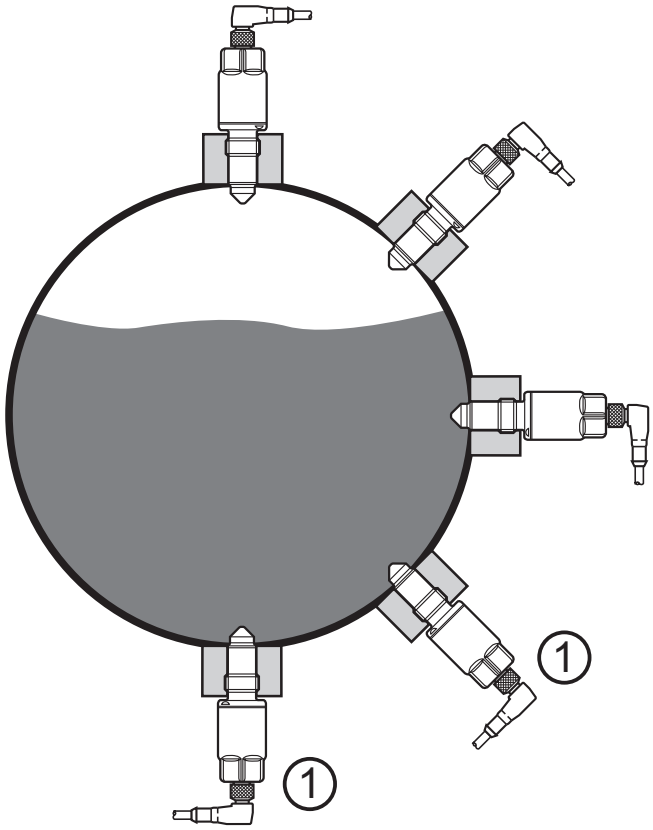
4.4.3 Parameter setting tools

You will find all necessary information about the required IO-Link hardware and software at www.ifm.com/de/io-link.

4.5 Application examples

4.5.1 Application examples for unit types with short probe

Example LMT121

Fig. A	Fig. B
	

1: Please note the warning!

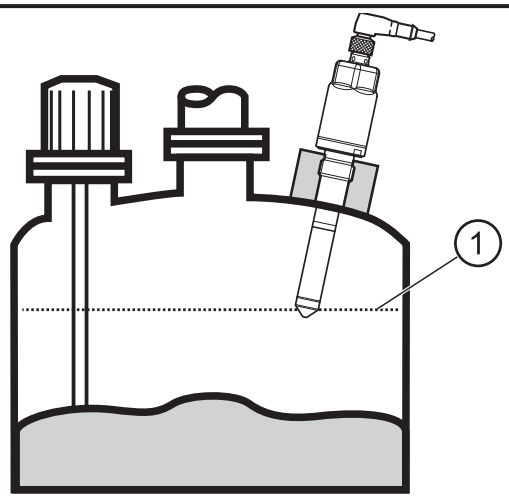
- Fig. A: Installation positions options in a tank (e.g. for point level detection or as run-dry protection).
- Fig. B: Fill level monitoring in pipes.

In case of strongly adhering and viscous media the installation positions (1) in fig. A and fig. B are only suited to some extent. Residues might be detected as level.

4.5.2 Application examples for unit types with longer probe

Example LMT104

Fig. C



1: Maximum level

Fig. C: Installation from the top to monitor the maximum level (1) or as overfill protection. Different probe lengths enable different response levels.

Fig. D

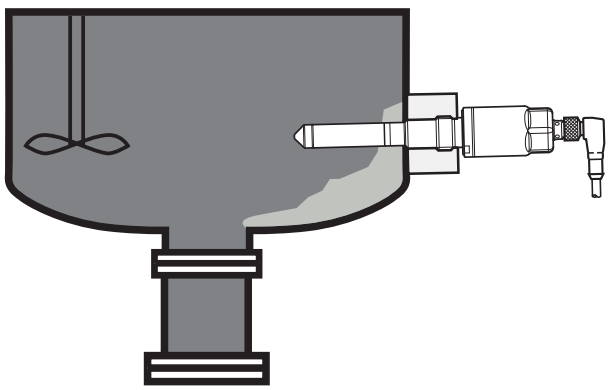


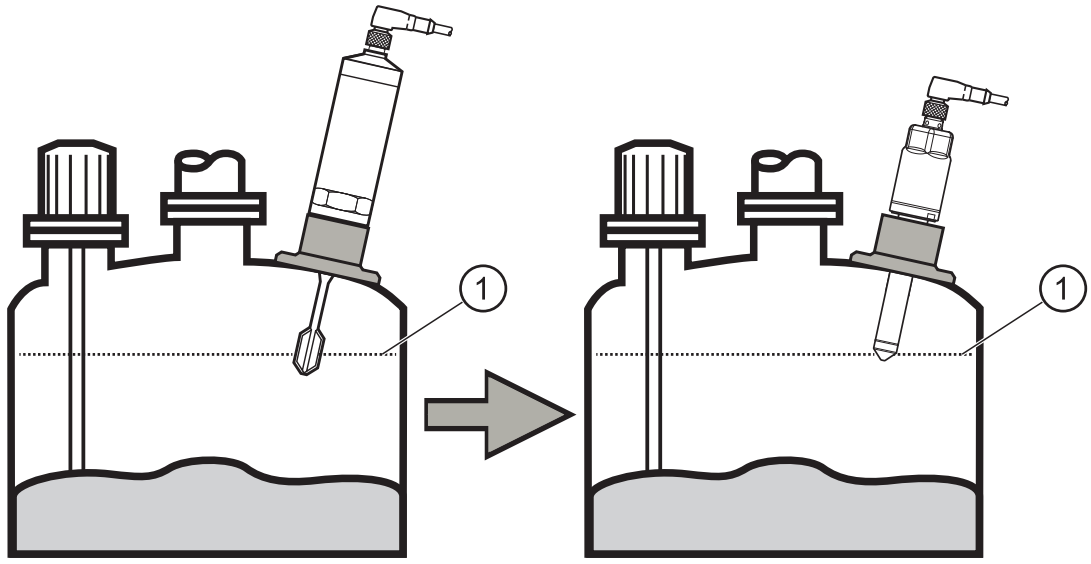
Fig. D: Lateral installation, the deeper position in the tank (longer distance between the sensor tip and the tank wall) ensures the suppression of strongly adhering and viscous deposits.

The variable clamp fitting (order no. E43322) allows variable mounting for unit types LMT1x4 and LMT1x5. This enables e.g. high-precision adjustment of the response point. Moreover, these types can be thermically decoupled from the process. This also makes applications with higher process temperature and/or with the risk of heat accumulation possible (e.g. tank insulation).

Further information: → Technical data sheet E43322
→ Operating instructions E43322

4.5.3 Application example installation in existing tuning fork adapters

Fig. E



1: Maximum level

Fig. E: Existing tuning fork welding adapters can be used in many cases with the unit types LMT2x2 and LMT3x2 with G3/4 or G1 process connection → 3.1 Applications. Typically, the response point (1) remains in most cases.

For use of process connections from other manufacturers:
Note the remarks → 5.1 Installation location / environment!

If properly installed in the original, hygienic welding adapter, EHEDG and also 3A conformity can be reached.

5 Installation

Before installing and removing the unit: Make sure that no pressure is applied to the system and there is no medium in the pipe or the tank. Also always note the potential dangers related to extreme machine and medium temperatures.

5.1 Installation location / environment

- Installation preferably in closed metal tanks.

When installed in plastic tanks, there may be deterioration caused by electromagnetic interference.

▶ Check the function by an application test.

▶ If disturbances occur, appropriate measures must be taken (shielding, grounding, etc.).

A correct fit and function of the unit and ingress resistance of the connection are only ensured using ifm adapters.

Available accessories: www.ifm.com → Data sheet search → Accessories

For use of process connections from other manufacturers:

▶ Ensure mechanical compatibility.

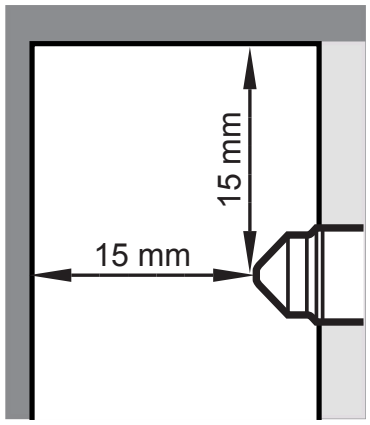
As a rule, ifm does not assume any responsibility for ingress resistance, hygiene and function, in particular with non-existing compatibility, incorrect installation!

- Installation in pipes from DN25 possible (for short probes).
- When mounted in restricted spaces (e.g. pipes, tank corners) or in agitators:

▶ To avoid malfunction and damage on sensor and plant, adhere to a distance of min. 15 mm to neighbouring objects (e.g. pipe/tank walls, structures, other LMT sensors) (fig. F).

▶ Observe the respective installation depth of the probe in particular with longer probes.

Fig. F



- Do not use any additional sealing material (e.g. PTFE tape). The sensor must be in electrical contact with the metal process connection.
- Protect the probe tip against direct sunlight (UV radiation).

5.2 Installation process

The unit is installed by means of an adapter.

▶ Observe the installation instructions of the adapter used.

- ▶ Ensure cleanliness of the sealing areas. Remove protective packaging only just before mounting. In case of damaged sealing areas replace the unit or the adapter.
- ▶ Weld or install the adapter into the tank / pipe.

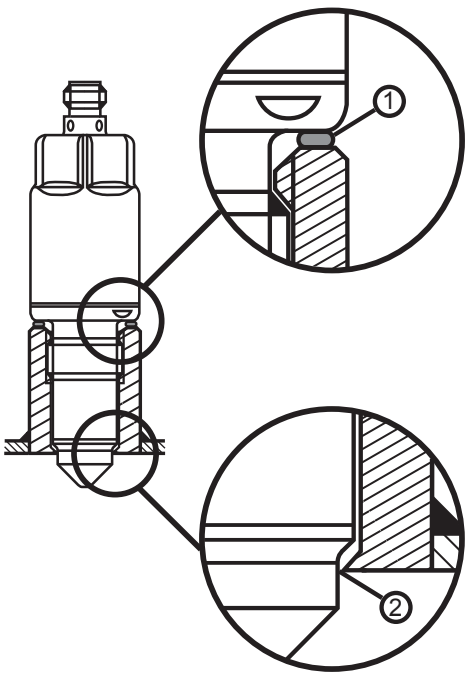
With clamp adapters etc. the order of the installation steps differs. Observe the notes in the installation instructions of the respective adapter.

5.2.1 Installation LMT1x0, LMT1x1 and LMT1x2

- ▶ Slide the supplied seal (black O-ring), Fig. G or the green flat seal (without figure) across the thread onto the sensor and/or check for correct position.

It seals the gap on the back between the sensor and the adapter.

Fig. G



- ▶ Only use O-rings that are supplied with the sensor.

Unsuitable O-rings can cause problems with ingress resistance:
- O-ring too large: Leakage on the sensor tip (2), Fig. G.
- O-ring too flat: Leakage on the gap on the back between the sensor and the adapter.

1: O-ring (supplied with the adapter)
2: Sealing cone / sealing PEEK on metal

- ▶ Slightly grease the thread of the sensor using a lubricating paste which is suitable and approved for the application.
- ▶ Screw the sensor into the adapter and tighten.
  Max. tightening torque: 20…25 Nm.
- ▶ After installation check the tank / pipe for ingress resistance.

5.2.2 Installation LMT1x4 and LMT1x5

The seal is formed by the flush front of the metal cone (2), Fig. H.

As an option, a PEEK sealing ring (3) is available, Fig. I. If the welding adapter is slightly warped or the sealing surface slightly damaged, the use of the PEEK sealing ring is recommended. The PEEK sealing ring is not supplied with the unit; it can be ordered separately. Order no.: E43323.

Fig. H

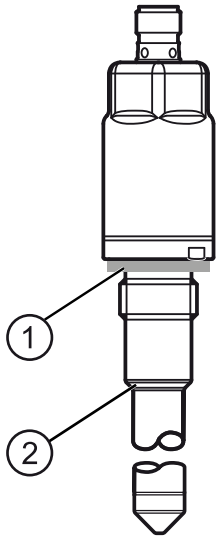
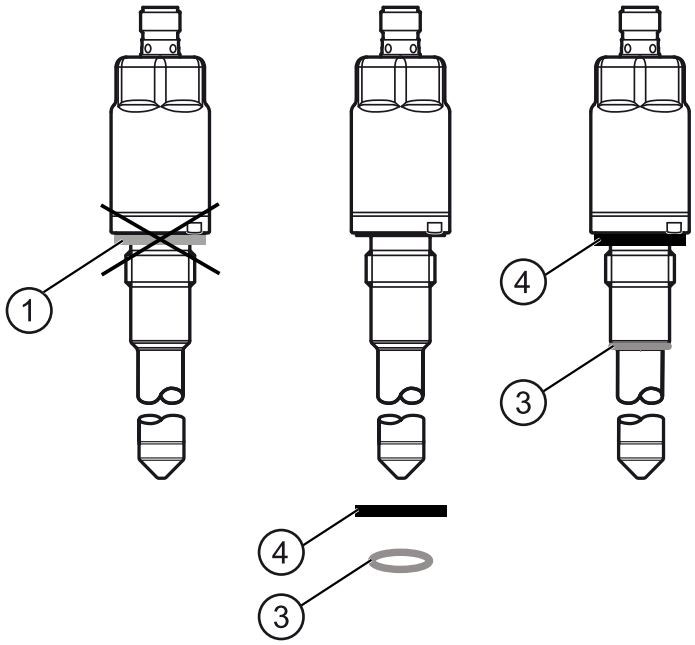


Fig. I



1: Green flat seal
2: Metal sealing cone
3: PEEK sealing, beige
4: Black flat seal

Installation using the metal sealing cone fig. H (2)

- ▶ Insert the green flat seal (1) and/or check its position. It seals the gap on the back between the sensor and the adapter.
- ▶ Slightly grease the thread of the sensor using a lubricating paste which is suitable and approved for the application.
- ▶ Screw the sensor into the adapter and tighten.
  Max. tightening torque: 20…25 Nm.
- ▶ After installation check the tank / pipe for ingress resistance.

Installation using the PEEK seal E43323, fig. I

- ▶ Replace the green flat seal (1) with the black flat seal (4). The flat seal (4) is supplied with the article order no. E43323!
- ▶ Slide the PEEK seal (3) onto the sensor tip until the end stop (cone).
- ▶ Slightly grease the thread of the sensor using a lubricating paste which is suitable and approved for the application.

- ▶ Screw the sensor into the adapter and tighten.
  Max. tightening torque: 20…25 Nm.
- ▶ After installation check the tank / pipe for ingress resistance.

5.2.3 Installation LMT2x2 and LMT3x2 in existing tuning fork adapters

Installation in existing tuning fork adapters with flush seal via O-ring → 4.5.3
Application example installation in existing tuning fork adapters.

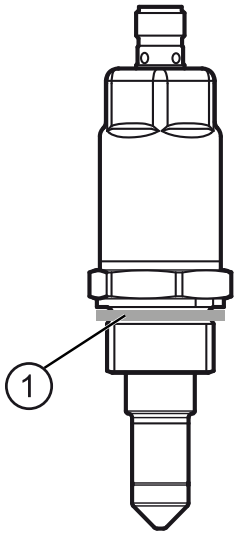
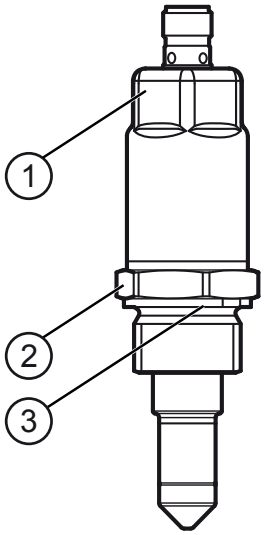
- ▶ Observe the notes in → 5.1 Installation location / environment for use in process connections of other manufacturers!
- ▶ Observe the mounting remarks of the manufacturer of the existing adapter!
- ▶ Insert the green flat seal (1), Fig. J, and/or check its position. It seals the gap on the back between the sensor and the adapter.
- ▶ Slide a suitable, original O-ring and a possibly existing spacing ring of the adapter over the sensor the right way round (G3/4) and/or check the position of the adapter (G1).
- ▶ Check the state and material of the O-ring, replace if necessary.
- ▶ Slightly grease the thread of the sensor using a lubricating paste which is suitable and approved for the application.
- ▶ Screw the sensor into the adapter and tighten at the hexagonal nut (2), Fig. K, until the sensor touches the end stop of the welding adapter (3).

Max. tightening torque for the hexagon AF 27 (1), fig. K: 35 Nm.

Max. tightening torques for the hexagon*) (2), fig. K:

LMT2x2	*) AF 32	75 Nm
LMT3x2	*) AF 36	100 Nm

- ▶ After installation check the tank / pipe for ingress resistance.

Fig. J	Fig. K
	

1: Green flat seal

1: Hexagonal nut AF 27
2: Hexagonal nut LMT2x2 AF 32 / LMT3x3 AF 36
3: End stop

5.3 Notes on the 3A compliant installation

Some versions of the unit have a 3A approval → 3.1 Applications. It is only valid in conjunction with adapters with 3A approval.

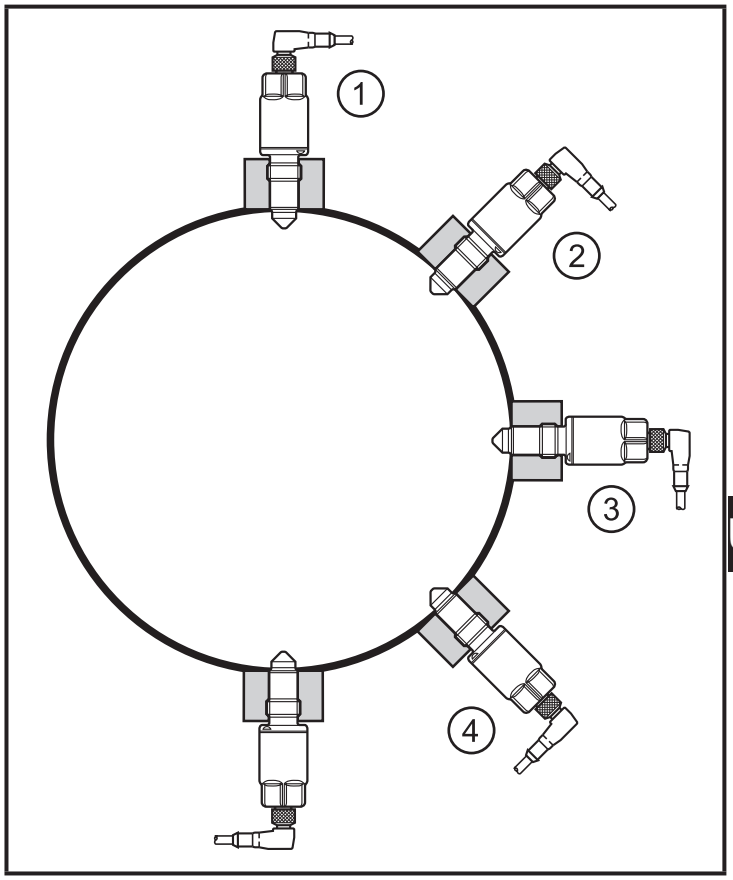
Available accessories: www.ifm.com → Data sheet search → Accessories

Cannot be used in plants that have to meet the criteria of E1.2 / 63-03 of the 3A standard 63-03.

Draining must be ensured by an appropriate installation position (position 1...4).

The process connection must be provided with a self-draining leakage port. This is ensured by using the adapter with 3A approval.

For use of process connections from other manufacturers observe chapter → 5.1 Installation location / environment.



5.4 Note on the use in accordance with EHEDG

Depending on the version the unit has an approval in accordance with EHEDG. It is only valid in conjunction with adapters with EHEDG approval (www.ifm.com → Data sheet search → Accessories).

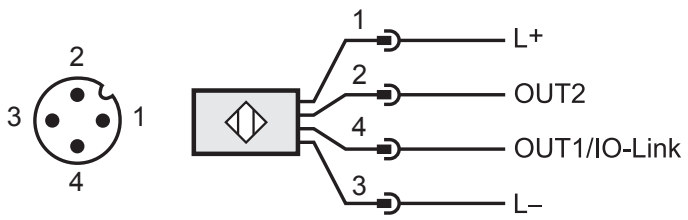
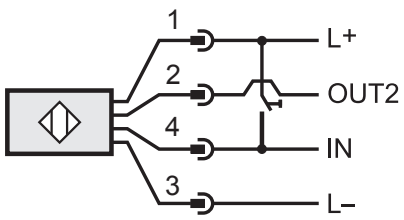
For use of process connections from other manufacturers observe chapter → 5.1 Installation location / environment.

▶ Make sure that the sensor is integrated into the system in accordance with EHEDG.

6 Electrical connection

The unit must be connected by a qualified electrician.
The national and international regulations for the installation of electrical equipment must be adhered to.
Voltage supply to EN 50178, SELV, PELV.

▶ Disconnect power.
▶ Connect the unit as follows:

Normal mode[1)]	Teach operation
	

[1)] Factory setting

Pin	Connection	Core colours for ifm sockets
1	Ub+	Brown
3	Ub-	Blue
2 (OUT2)	pnp / npn switching signal	White
4 (OUT1)	• pnp / npn switching signal • IO-Link • Input for teach signal	Black

Factory setting OUT1 and OUT2: pnp switching signal

In the factory setting, the teach operation is deactivated.
For activation: → 7.1 Parameter setting via PC → OU1 = Tch

- Only output OUT2 is available in the teach mode.

Information about available sockets/plugs at www.ifm.com → Connection technology → Sockets.

7 Parameter setting

When a suitable unit has been selected, the presence of certain media is detected, deposits or foam are suppressed. In many cases the factory setting is sufficient → 3.1 Applications. For special requirements it is possible to adapt the sensitivity and other functions to the application. Splashes, wave movements and air bubbles can be compensated by setting a switching delay, for example.

The parameters can be set prior to installation and setup of the unit or while in operation.

If you change parameters during operation, this will influence the function of the plant.

▶ Ensure that there will be no malfunctions in your plant.

The following subchapters describe the three different parameter setting options of the unit.

7.1 Parameter setting via PC

For parameter setting IO-Link software is necessary (e.g. "LINERECORDER SENSOR" or "ifm Container"). To connect the sensor via the USB interface of a computer, the USB IO-Link interfaces, order no. E30396 or E30390, are available.

The program library of the available DTM objects, the IO Device Description (IODD) and the FDT service program "ifm Container" can be downloaded at www.ifm.com → Service → Download.

<table>
<tr><th colspan="3">The following parameters can be set:</th></tr>
<tr><td>SPx / rPx</td><td colspan="2">Sensitivity of the set points (SPx) and reset points (rPx) for outputs OUT1 and OUT2.
The values for SPx / rPx are set in per cent of the maximum process value.
The process value is defined as follows:
Process value in air = 0 %
Process value in tap water = 100 %
Minimum hysteresis: 2 %
Reference values:</td></tr>
<tr><td></td><td>Aqueous / water-based media:</td><td>SPx = 62 %, rPx = 54 %
(factory setting LMTx0x)</td></tr>
<tr><td></td><td>Media with low water content:</td><td>SPx = 35 %, rPx = 29 %
(factory setting LMTx2x)</td></tr>
<tr><td></td><td>Oils, fats, powdery media:</td><td>SPx = 8 %, rPx = 5 %
(factory setting LMTx1x)</td></tr>
<tr><td>OUx</td><td colspan="2">Output function for OUTx:
- [Hno] = hysteresis function/NO
- [Hnc] = hysteresis function/NC
- [Fno] = window function/NO
- [Fnc] = window function/NC

OUT1:
- [Tch] = configure pin 4 as input for the teach signal
(→ 6 Electrical connection / → 7.3 Parameter setting via the teach input)</td></tr>
<tr><td>TSP1</td><td colspan="2">Teach to medium 1
• Full adjustment to the medium 1 to be detected, automatically sets the switching thresholds SP1 / rP1 for OUT1.</td></tr>
<tr><td>TSP2</td><td colspan="2">Teach to medium 2
• Full adjustment to the medium 2 to be detected, automatically sets the switching thresholds SP2 / rP2 for OUT2.</td></tr>
<tr><td>FOUx</td><td colspan="2">Response of the outputs OUTx in case of a fault.</td></tr>
<tr><td>dFo</td><td colspan="2">Delay time for switching response in case of a fault.
Setting range 0…5 s. Step increment 0.2 s</td></tr>
<tr><td>dsx*)</td><td colspan="2">Switching delay for OUTx.
Setting range 0…10 s. Step increment 0.2 s
*) Parameter ds is not available for LMT100, LMT110 and LMT121!</td></tr>
</table>

The following parameters can be set:	
drx	Switch-off delay for OUTx. Setting range 0…10 s. Step increment 0.2 s
P_n	Switching logic for the outputs (pnp or npn)
rES	Restore the factory setting
COd 0	Access code for menu level 1 Menu level 1 contains all parameters listed. After activation of this access code the unit is completely protected against unauthorised changes. In case of loss of the valid code, parameter setting is not possible! Therefore store the code carefully!
COd 1	Access code for menu level 2 Menu level 2 contains the menu items FOU, ds, dr, P_n, dFo, rES and COd. After activation of this access code only these parameters are protected against unauthorised changes.

7.2 Parameter setting via the memory plug

Parameters can be set quickly and easily via a correctly set memory plug (order no. E30398). To do so, a suitable parameter set must be loaded to the memory plug (e.g. via a PC).

The memory plug can also be used to save the current parameter setting of a unit and to transfer it to other units of the same type.

You can find more information about the memory plug in the technical documentation (available free of charge at www.ifm.com).

7.3 Parameter setting via the teach input

In the teach mode the functionality is restricted, only output OUT2 is available. During teach operation, the LEDs indicate the switching status of output OUT2.

7.3.1 Requirements

The teach input must be activated. To do so, there are two options:

- Via the IO-Link software → 7.1 Parameter setting via PC.
- Via the memory plug → 7.2 Parameter setting via the memory plug.

Output OUT2 must be configured as hysteresis function (Hnc or Hno). Another configuration causes an error during the teach process (→ 7.3.4 Fault during the setting process).

The teach process itself is carried out by applying Ub+ to pin 4 (→ 6 Electrical connection).

The tool which is available for this process is the teach button (order no. E30405).

7.3.2 Set to the full vessel

With the full adjustment the sensitivity of the unit can be set to the medium to be detected in an optimum manner (this suppresses deposits and foam):

▶ Fill the tank until the probe tip is completely covered.
▶ Apply Ub+ to pin 4 for > 2 ... < 5 s (T1).
> LEDs flash with 2 Hz (⎍⎍⎍).
> After the teach process, the LEDs light for 2 s; then the colours change to regular operating mode (table → 7.3.3).

7.3.3 Changing the output function

Output OUT2 can be changed from "NC" (Hnc) to "NO" (Hno) and vice versa. Only the hysteresis functions (Hnc / Hno) are available, the parameters for the window functions can only be set via IO-Link:

▶ Apply Ub+ to pin 4 for > 5 ... < 10 s (T1).

> LEDs flash with 2 Hz first (⎍⎍⎍), after 5 s it double flashes at 1 Hz (⎍⎍⎽⎍⎍).

> After the change, the LEDs light for 2 s; then the colours change to regular operating mode (table below).

> After the change, the LEDs light depending on the level as follows:

No medium detected	LEDs = yellow (with Hnc)	LEDs = green (with Hno)
Medium detected	LEDs = green (with Hnc)	LEDs = yellow (with Hno)

7.3.4 Fault during the setting process

The teach operation is cancelled in case of a fault:

> LEDs flash green-yellow at 8 Hz.

> The unit returns to the operating mode with unchanged settings.

Possible faults:

- Time error (teach time too long / too short).
- Internal sensor signal outside the measuring range.
- Wrong output function: No hysteresis function was selected as output function for OUT2 → 7.3.1 Requirements.
- Process value too small (< 9 %, e.g. for powdery media), setting SPx / rPx has to be made manually → 7.1 Parameter setting via PC.

8 Operation

When the supply voltage has been applied, the unit is in the operating mode. It carries out its evaluation functions and switches the outputs.

The following table shows the factory settings. In this state OUT1 = Hno and OUT2 = Hnc.

Operating mode	LEDs	OUT1	OUT2
Unit ready for operation, no medium detected	Green	OFF	ON
Unit ready for operation, medium detected	Yellow	ON	OFF
No operating voltage	OFF	OFF	OFF
Short circuit output 1	Flashes yellow	-	[1]
Short circuit output 2	Flashes yellow	[1]	-
Error / failure	-	OFF	OFF
Teach operation	→ 7.3.2 Set to the full vessel → 7.3.3 Changing the output function		
Fault during the setting process	LEDs flash green-yellow at 8 Hz		

[1] According to the level

In the factory setting, the LEDs indicate the switching status of OUT1 (exception: teach operation → 7.3).

9 Maintenance, repair, disposal

- From time to time check the probe cap for deposits and damage. Clean the unit if badly soiled. In case of damage replace the unit.
- After removal and before reinstallation of the unit carefully clean the probe neck and the installation slot - especially the sealing cone - with appropriate methods to ensure that it is resistant to ingress and without dead space.

- If the variable clamp fitting E43322 is used: Check the correct position of the safety chain or the securing wire between the clamp fitting and the sensor from time to time.
- Replace if damaged!

When the medium is changed, it may also be necessary to use another type of unit or adapt the sensitivity → 3.1 Applications.

- It is not possible to repair the unit.
- After use dispose of the unit in an environmentally friendly way in accordance with the applicable national regulations.
- In case of returns ensure that the unit is free from soiling, especially of dangerous and toxic substances. For transport only use appropriate packaging to avoid damage of the unit.

10 Notes on the regulation (EC) 1935/2004

The following components of the product are designed for permanent contact with food according to the regulation (EC) 1935/2004:

- Sensor tip made of PEEK
- Sealing ring made of PEEK (→ 5.2.2)

11 Technical data and scale drawing

Technical data and scale drawing at www.ifm.com → Data sheet search → Enter the article number.

12 Factory setting

	LMTx0x	LMTx1x	LMTx2x	User setting
SP1	62 %	8 %	35 %	
rP1	54 %	5 %	29 %	
OU1	Hno	Hno	Hno	
SP2	62 %	8 %	35 %	
rP2	54 %	5 %	29 %	
OU2	Hnc	Hnc	Hnc	
FOU1	OFF	OFF	OFF	
FOU2	OFF	OFF	OFF	
ds1 *)	0.0	0.0	0.0	
ds2 *)	0.0	0.0	0.0	
dr1	0.0	0.0	0.0	
dr2	0.0	0.0	0.0	
P_n	pnp	pnp	pnp	
dFo	0.0	0.0	0.0	

Percentage values refer to the final value of the process value → 7 Parameter setting
*) Parameters not provided with LMT100, LMT110 and LMT121

More information at www.ifm.com